

Missouri
Department of
Natural Resources

Use Attainability Analysis

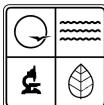
for

WBID 0658 Spring Creek

Submitted by
Pickett Ray & Silver Inc.

to
Missouri Department of Natural Resources
Water Protection Program

Date received: October 31, 2007



Missouri
Department of
Natural Resources

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet A – Water Body Identification

I. Water Body Information (For water body being surveyed)

Water Body Name (from USGS 7.5' quad): Spring Creek	
Missouri Water Body Identification (WBID) Number: 658	
8-digit HUC: 10280202	County: Sullivan
Upstream Legal Description (from Table H): Hwy 129	
Downstream Legal Description (from Table H): 26,64N, 18W	
Number of sites evaluated: 3	
List all sites numbers, listed consequently upstream to downstream: 658-1; 658-2; 658-3	

Site Locations Map(s): Attach a map of the entire segment with assessment sites clearly labeled.
Mark any other items that may be of interest.

II. Facility Information (list all permitted discharges to the water body segment)

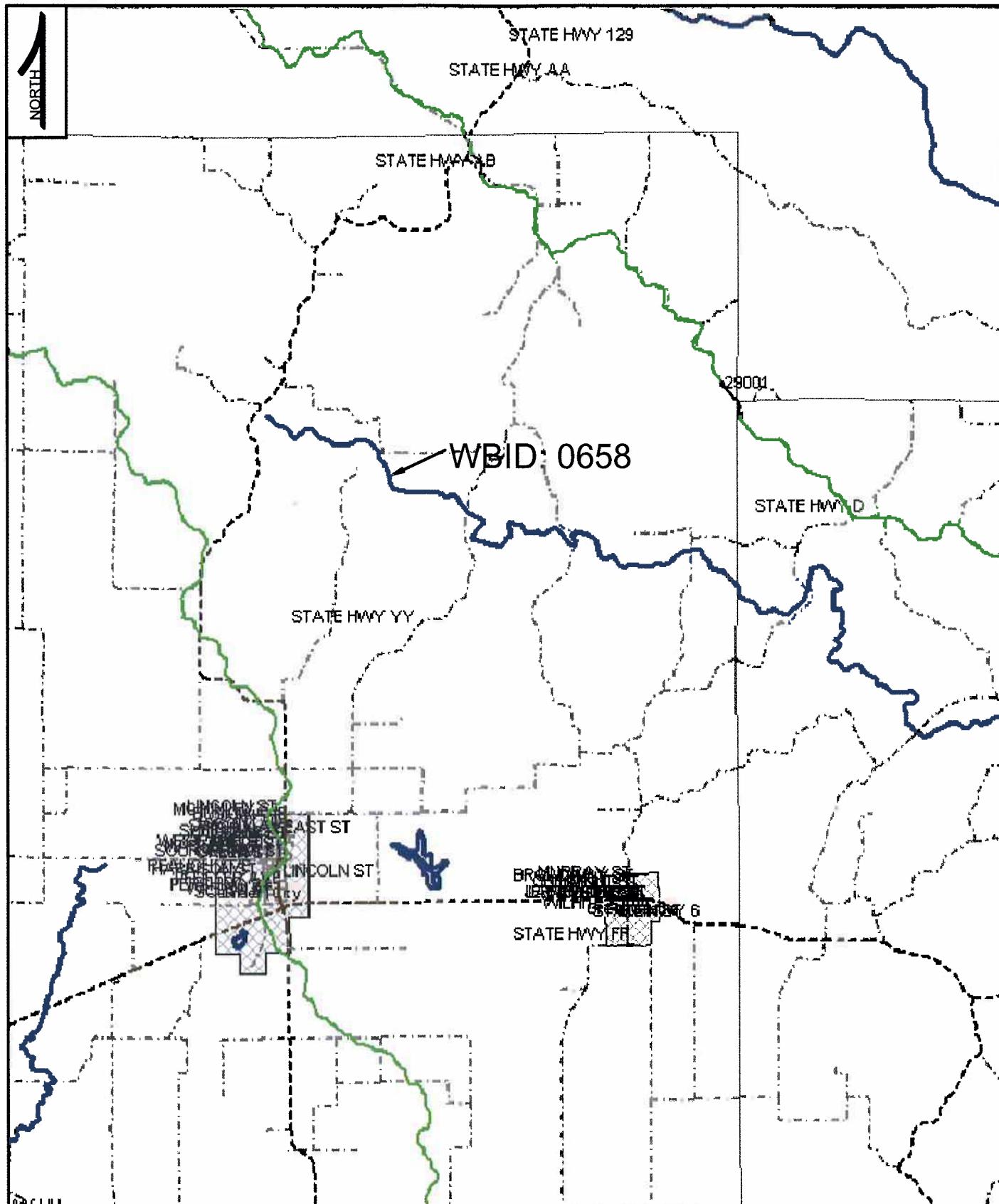
Facility Name(s) and Permit Number(s): PSF, Green Hills Finishing - MO 0118486

III. UAA Surveyor (please print legibly)

Name of Surveyor: Matt Costley	Telephone Number: 636 397 1211
Organization/Employer: PRS	

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

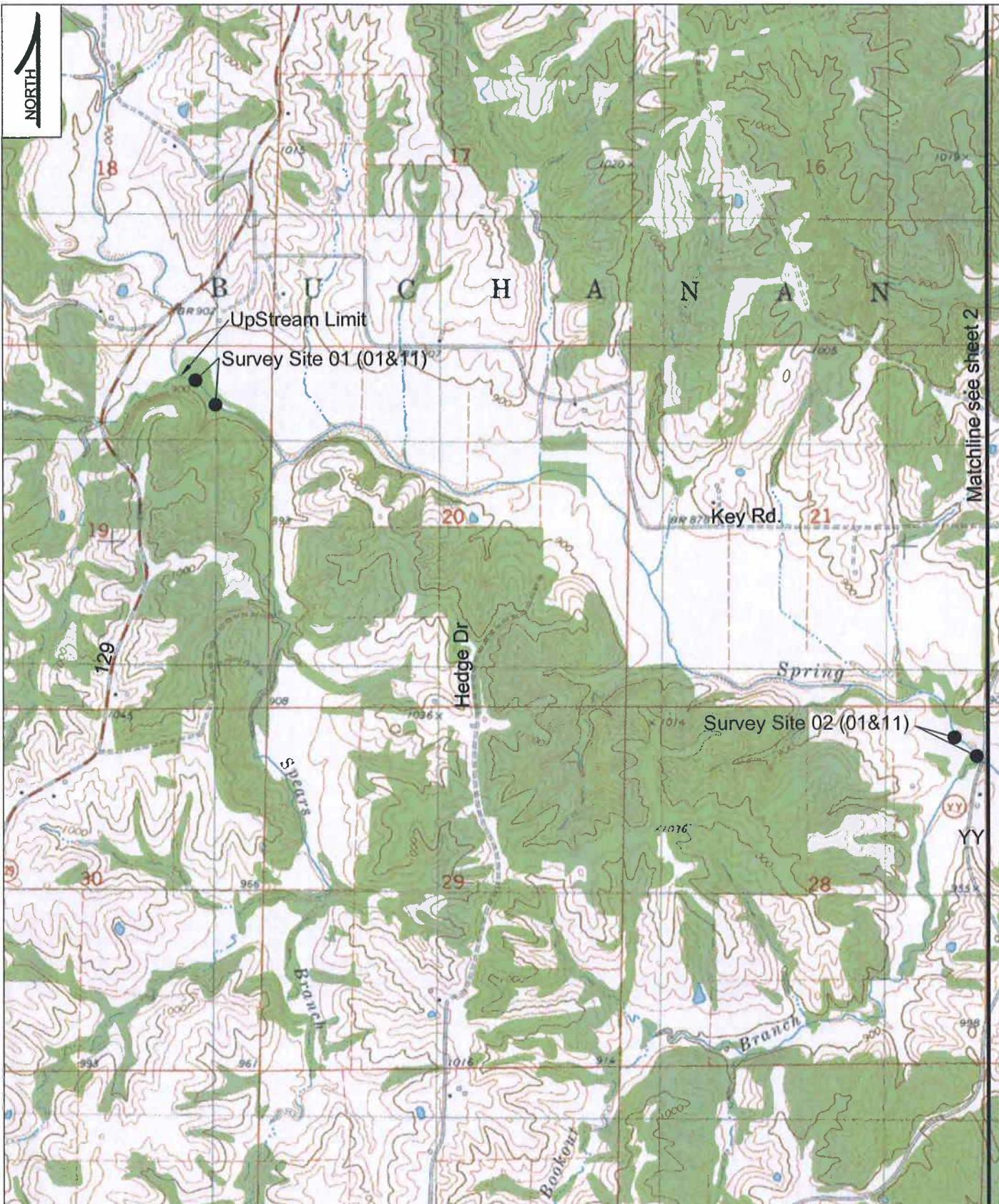
Signed: Matt Costley Date: 9/10/07



PICKETT RAY & SILVER	
Civil Engineers Land Surveyors Natural Resources	WBID #: 0658
Address: 333 Mid Rivers Mall Drive St. Peters, Missouri 63376	Name: Spring Creek County: Sullivan GIS Location Map
<small>© Copyright 2007 by Pickett Ray & Silver, Inc. CONFIDENTIAL PROPRIETARY MATERIAL The use, reproduction and sales rights of this drawing are reserved by Pickett, Ray & Silver Inc.</small>	

WBID #: 0658
Name: Spring Creek
County: Sullivan
GIS Location Map

PRS Job Number: 07031.MODN.01E
Drawn By: BLS Date: 10-11-07
Checked By: JCV Date: 10-11-07



PICKETT RAY & SILVER

Civil Engineers Land Surveyors Natural Resources

Address: _____ Phone: (636)397-1211

Address: 333 Mid Rivers Mall Drive Phone: (636)397-1104

St. Peters, Missouri 63376 Website:www.prs3.com

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CONFIDENTIAL PROPRIETARY MATERIAL The
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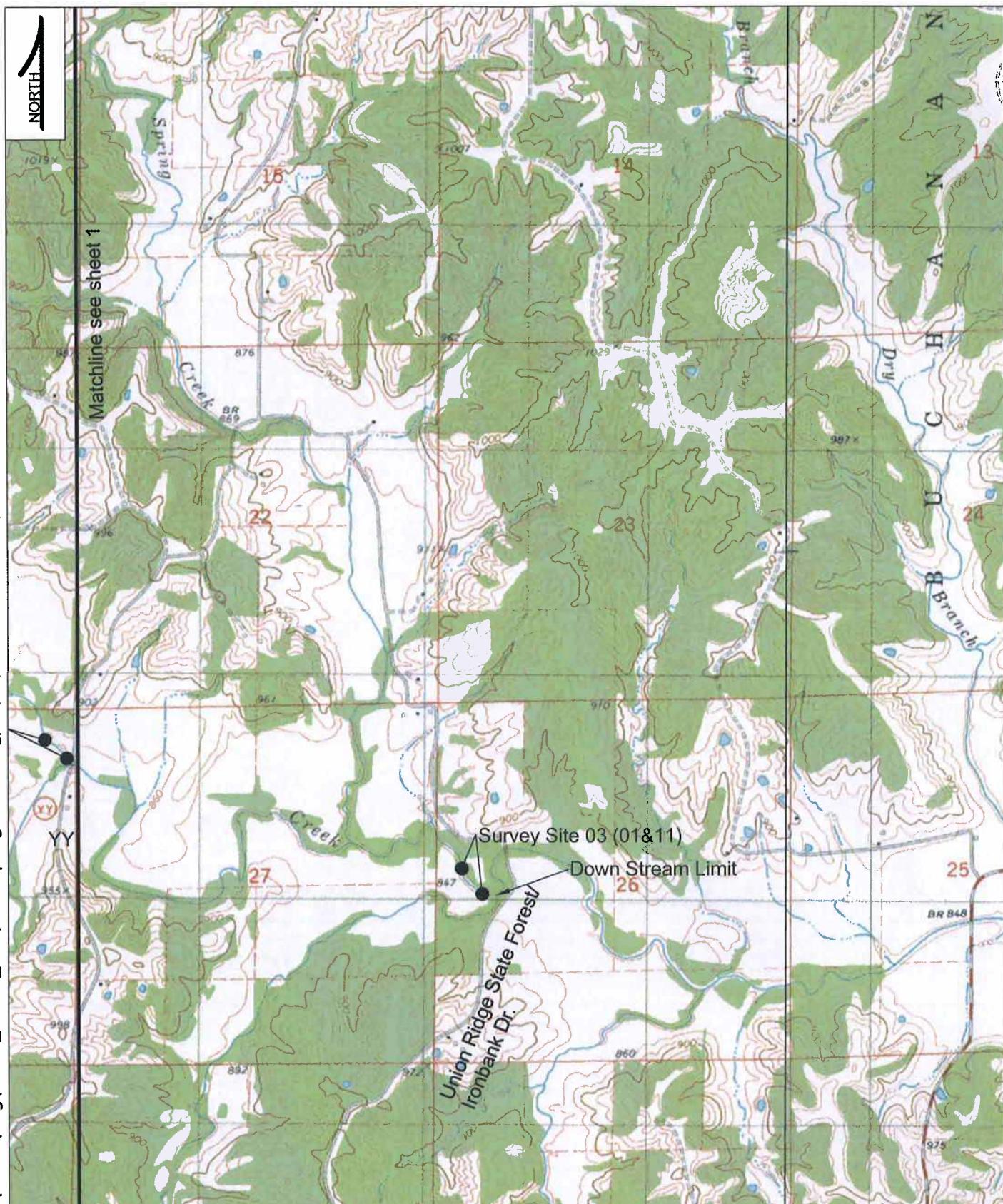
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WBID #: 0658
Name: Spring Creek
County: Sullivan
USGS Location Map

SHEET 1 OF 2

A horizontal graphic scale with numerical markings at 0, 1000, 2000, and 4000. The scale is represented by a black bar with white numerical labels above it. Below the scale, the words "GRAPHIC SCALE" are printed in a bold, sans-serif font.

*PRS Job Number: 07031.MODN.01E
Drawn By: BLS Date: 09-25-07
Checked By: JCV Date: 09-25-07*



PICKETT RAY & SILVER

Civil Engineers Land Surveyors Natural Resources

Address: 333 Mid Rivers Mall Drive
St. Peters, Missouri 63376 Phone: (636)397-1211
Fax: (636)397-1104 Website: www.prs3.com

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WBID #: 0658
Name: Spring Creek
County: Lincoln
USGS Location Map

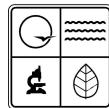
SHEET 2 OF 2

0 1000 2000 4000
GRAPHIC SCALE

1 inch = 2000ft.

PRS Job Number: 07031.MODN.01E
Drawn By: BLS Date: 09-25-07
Checked By: JCV Date: 09-25-07

WBID # 658
Site # 1



Missouri Field Data Sheets for Recreational Use Stream Surveys
Department of Natural Resources

Data Sheet B – Site Characterization
(must be completed for each site)

Date & Time: <u>9/10/07 3:30 pm</u>	Site Location Description (e.g., road crossing): <u>Downstream of Road Crossing</u>
Personnel (Data Collectors): <u>LS + MC</u>	
Current Weather Conditions: <u>Cool, light rain</u>	Facility Name: <u>PSF, Green Hills Finishing</u>
Weather Conditions for Past 10 days: <u>98 in rain</u>	Permit Number: <u>Mo 0118486</u>
Drought Conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location: See attached

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)					
Site 01	Easting (UTM X): <u>5038660</u>	Northing (UTM Y): <u>4465462</u>	Horizontal Accuracy: (EPE / FOM / PDOP)	<u>3.7</u>	Meters
Site 11	Easting (UTM X): <u>503985</u>	Northing (UTM Y): <u>4465368</u>	Horizontal Accuracy: (EPE / FOM / PDOP)	<u>5.4</u>	Meters

Photos: See attached photos + descriptions

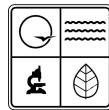
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input checked="" type="checkbox"/> Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use Data Sheet D- Recreational Use Interview when conducting interviews.)

Clothing found at pool below bridge

WBID # 658Site # 1

Missouri Field Data Sheets for Recreational Use Stream Surveys
Department of
Natural Resources

Data Sheet B – Site Characterization (continued)**Surrounding Conditions*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments:				

Evidence of Human Use*: (Attach photos and reference in "Photos" section)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input checked="" type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
Comments / Other:				

Substrate*: (These values should add up to 100%)

% Cobble	20	% Gravel	20	% Sand	40	% Silt	20	% Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site)

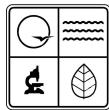
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Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input checked="" type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

WBID # 658
Site # _____



Missouri Field Data Sheets for Recreational Use Stream Surveys
Department of
Natural Resources

Data Sheet B – Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

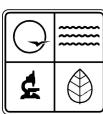
Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: MSC Date of Survey: 9/10/09

Organization: PFS Position: FTL

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results



Waterbody ID: 658

Site #: A 1

Missouri

Department of

Natural Resources

Estimated Channel Incision: 0.2 (m) (height between low bank width and water)

GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)
 01 UTM X: 503866 UTM Y: 4465462 +/- (meters) 3.7 PDOP: PRDP
 11 UTM X: 503985 UTM Y: 4465368 +/- (meters) 5.4

Average Stream Width: 3.3 (meters) Length of Survey Segment: 150 (meters)
 (To determine Length of Reach)

Field Staff: LS & MC

Dissolved Oxygen

Date: 9/10/07 Time: 3:30

Dissolved Oxygen: 7.6 (mg/L)

Dissolved Oxygen: _____ (% sat)

Specific Cond: _____ ($\mu\text{S}/\text{cm}$)

Water Temperature: 19.2 ($^{\circ}\text{C}$)

Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11		
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1.33	.65	.20	.07	.61	.14	.56	.2	.54	.21	.52	.25	.49	.50	.56	.30	.14	.68	.55	.05	.64	.10	
	2	.66	.03	.40	.05	1.2	.19	1.1	.23	1.1	.25	1.0	.43	1.0	.60	1.1	.45	.28	.10	1.1	.08	1.3	.18
	3	1.0	.04	.60	.07	1.8	.24	1.7	.11	1.6	.23	1.5	.11	1.5	.55	1.6	.35	.42	.10	1.7	.10	2.0	.2
	4	1.3	.05	.80	.05	2.4	.20	2.2	.16	2.2	.26	2.0	.10	2.0	.50	2.2	.34	.56	.10	2.2	.10	2.6	.2
	5	1.7	.05	1.0	.05	3.0	.20	2.8	.26	2.7	.20	2.5	.05	2.5	.32	2.7	.30	.70	.10	2.8	.10	3.2	.25
	6	2.0	.11	1.2	.06	3.6	.13	3.4	.15	3.2	.20	3.0	.10	3.0	.21	3.3	.30	.84	.10	3.3	.13	3.8	.18
	7	2.3	.10	1.4	.06	4.2	.15	4.0	.03	3.8	.13	3.5	.11	3.5	.20	4.0	.22	1.0	.10	4.0	.15	4.5	.15
	8	2.6	.05	1.6	.06	4.8	.09	4.5	.05	4.3	.11	4.0	.10	4.0	.10	4.4	.10	1.1	.05	4.4	.10	5.1	.13
	9	3.0	.05	1.8	.05	5.4	.15	5.0	.01	5.0	.10	4.5	.05	4.5	.05	5.0	.10	1.3	.01	5.0	.10	5.8	.11
Right Bank	3.3	0	2.0	0	6.1	0	5.6	0	5.4	0	5.2	0	4.9	0	5.6	0	6.4	0	5.5	0	6.4	0	
	Feature Type (riffle, run, or pool)		Riffle	n. riffle	Run	Run	Run	Run	Run	Run	Run	Run	Pool	Riffle	Riffle	Run							

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width.

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

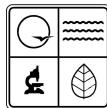
Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: MC

Date: 9/10/07

WBID # 658
Site # 2



Missouri Field Data Sheets for Recreational Use Stream Surveys
Department of Natural Resources
Data Sheet B – Site Characterization
(must be completed for each site)

Date & Time: <u>09/10/07</u> <u>2:30p</u>	Site Location Description (e.g., road crossing): <u>Road Crossing</u> <u>Upstream of the</u>
Personnel (Data Collectors): <u>LS + MC</u>	Facility Name: <u>PSF Green Hills Finishing</u>
Current Weather Conditions: <u>Cloudy, windy, 68°F</u>	Permit Number: <u>MO 0118486</u>
Weather Conditions for Past 10 days: <u>.98 in rain</u>	Drought Conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)					
Site 01	Easting (UTM X): <u>507278</u>	Northing (UTM Y): <u>4463930</u>	Horizontal Accuracy: (EPE / FOM / PDOP)	<u>4.3</u>	Meters
Site 11	Easting (UTM X): <u>507392</u>	Northing (UTM Y): <u>4463826</u>	Horizontal Accuracy: (EPE / FOM / PDOP)	<u>3.3</u>	Meters

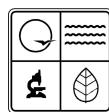
Photos: See attached photos and descriptions

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use Data Sheet D- Recreational Use Interview when conducting interviews.)

WBID # 658Site # 2

Missouri Field Data Sheets for Recreational Use Stream Surveys
Department of
Natural Resources

Data Sheet B – Site Characterization (continued)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input checked="" type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:

Comments:

Evidence of Human Use*: (Attach photos and reference in "Photos" section)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering

Comments / Other:

Substrate*: (These values should add up to 100%).

% Cobble	10	% Gravel	40	% Sand	50	% Silt	% Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site)

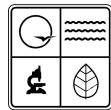
Aquatic arnoldia, barnyard grass

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other: Sandy
Surface Deposit:	<input checked="" type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input type="checkbox"/> None	<input type="checkbox"/> Other:

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

WBID # 652
Site # 87



Missouri Field Data Sheets for Recreational Use Stream Surveys
Department of
Natural Resources

Data Sheet B – Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

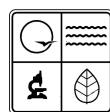
Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: MC Date of Survey: 9/10/09

Organization: PRS Position: FTL

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results



Waterbody ID: 658

Site #: 2

Missouri

Department of 0.4 (m) (height between low bank width and water)

Natural Resources

GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)

01 UTM X: 507278

UTM Y: 4463930

PDOP:

+/- (meters) 4.3

11 UTM X: 507392

UTM Y: 4463826

+/- (meters) 3.3

Average Stream Width: 5.1 (meters)

Length of Survey Segment: 150 (meters)

(To determine Length of Reach)

(20x average stream width)

Field Staff: VS & MC

Dissolved Oxygen

Date: 9/10/07

Time: 230

Dissolved Oxygen: 9.35 (mg/L)

Dissolved Oxygen: _____ (% sat)

Specific Cond: _____ (µS/cm)

Water Temperature: 21.2 (°C)

Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)																				
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1.22	.02	.47	.01	.31	01	.83	.10	.72	.11	.53	.25	.47	.09	.32	.15	.58	.19	.57	.25	.51	.05
	2.40	.03	1.0	.02	.60	.02	1.7	0	1.4	.11	1.1	.30	1.0	.19	.60	.19	1.2	.26	1.1	.30	1.0	.10
	3.60	.02	1.4	.05	.90	.01	2.5	.05	2.2	.13	1.6	.31	1.4	.24	.90	.31	1.87	.32	1.7	.30	1.5	.15
	4.80	.03	2.0	.05	1.2	0	3.3	.05	3.0	.15	2.1	.26	2.0	.25	1.2	.44	2.3	.30	2.3	.34	2.0	.17
	5.10	.06	2.4	0	1.5	0	4.2	0	3.6	.19	2.7	.23	2.4	.26	1.5	.46	3.0	.31	3.0	.36	2.5	.18
	6.12	.12	2.8	0	1.8	.02	5.0	0	4.4	.10	3.2	.15	2.8	.30	1.8	.34	3.5	.44	3.4	.42	3.0	.23
	7.14	.13	3.3	.01	2.1	.02	5.8	0	5.1	.02	3.7	.03	3.3	.28	2.1	.3	4.0	.4	4.0	.35	3.5	.24
	8.16	.10	3.8	.02	2.4	.04	6.6	0	6.0	.13	4.2	0	3.8	.14	2.4	.22	4.6	.35	4.6	.23	4.0	.25
	9.18	.02	4.2	.03	2.7	.05	7.5	.09	6.6	.10	4.8	.05	4.2	.09	2.7	.10	5.2	.28	5.1	.15	4.5	.14
Right Bank	2.0	0	4.7	0	3.1	0	8.3	0	7.2	0	5.3	0	4.7	0	3.2	0	5.8	0	5.7	0	5.1	0
Feature Type (riffle, run, or pool)	Riffle	Riffle	Thallic	Riffle	Riffle	Pool	Run	Run	Run	Run	Pool	Pool										

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width.

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

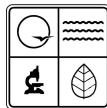
Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed:

Date:

WBID # 658
Site # 3W#



Missouri Field Data Sheets for Recreational Use Stream Surveys

Department of Natural Resources

Data Sheet B – Site Characterization (must be completed for each site)

Date & Time: <u>9/10/07 1:29 pm</u>	Site Location Description (e.g., road crossing): <u>Upstream of road crossing</u>
Personnel (Data Collectors): <u>LS + MC</u>	Facility Name: <u>PSF Green Hills Finishing</u>
Current Weather Conditions: <u>Cloudy, Windy, 70°</u>	Permit Number: <u>MO 0118486</u>
Weather Conditions for Past 10 days: <u>98 in. rain</u>	Drought Conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): <u>509159</u>	Northing (UTM Y): <u>4463358</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>4.7 Meters</u>
Site 11	Easting (UTM X): <u>509239</u>	Northing (UTM Y): <u>4463232</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>.21 Meters</u>

Photos: See attached photos and descriptions

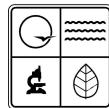
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use Data Sheet D- Recreational Use Interview when conducting interviews.)

WBID # 658
Site # 3



Missouri Field Data Sheets for Recreational Use Stream Surveys
Department of Natural Resources
Data Sheet B – Site Characterization (continued)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:

Comments:

Evidence of Human Use*: (Attach photos and reference in "Photos" section)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input checked="" type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering

Comments / Other:

Substrate*: (These values should add up to 100%.)

% Cobble	% Gravel	<u>90</u>	% Sand	% Silt	<u>10</u> % Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site)

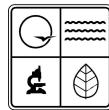
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Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input checked="" type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other: <u>Clay</u>
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

WBID # 658
Site # 3



Missouri Field Data Sheets for Recreational Use Stream Surveys
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Data Sheet B – Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

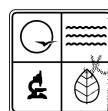
Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: MC Date of Survey: 9/20/07

Organization: PRS Position: FTL

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results



Waterbody ID: 658

Site #: 30

Missouri

Department of

Natural Resources

GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)

01 UTM X: 569159

UTM Y: 4463358

PDOP

+/- (meters) 4.7

11 UTM X: 569239

UTM Y: 4463232

+/- (meters) 4.7

Average Stream Width: 3.7 (meters)

Length of Survey Segment: 150 (meters)

(To determine Length of Reach)

(20x average stream width)

Field Staff: LS & MC

Dissolved Oxygen	
Date:	9/10/07
Time:	1:20
Dissolved Oxygen:	7.34 (mg/L)
Dissolved Oxygen:	(% sat)
Specific Cond:	(µS/cm)
Water Temperature:	20.8 (°C)

Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)																				
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	.20	.63	.46	.05	.27	.06	.30	.01	.48	.06	.27	.02	.88	.11	.79	.24	.48	.4	.53	.62	.37	.1
	.40	.05	.92	.13	.54	.07	.60	.03	1.0	.05	.54	.01	.18	.0	.14	.4	1.0	.36	1.5	.05	.74	.12
	.60	.05	.14	.11	.81	.03	.90	.03	1.4	.05	.81	.01	2.6	.29	.24	.35	1.4	.3	2.2	.04	.1	.18
	.80	.1	1.8	.1	1.1	.06	1.2	.04	2.0	0	1.1	.02	3.5	0	3.2	.34	2.0	.24	3.0	.05	1.5	.15
	1.0	.1	2.3	.06	1.4	.65	1.5	.05	2.4	6	1.4	.03	4.4	.14	4.0	.33	2.4	.16	3.7	.05	2.0	.15
	1.2	.1	2.8	.05	1.6	.62	1.8	.04	3.0	0	1.6	.05	5.3	3	4.8	.34	2.8	.14	4.4	.05	2.2	.23
	1.4	.13	3.2	.04	2.0	.05	2.1	.05	3.4	.1	2.0	.1	6.2	.19	5.6	.24	3.3	.1	5.1	0	2.6	.2
	1.6	.13	3.7	.01	2.2	.03	2.4	.05	3.8	.05	2.2	.05	7.0	.24	6.4	.19	3.8	.1	5.8	0	3.6	.1
	1.8	.08	4.1	.02	2.4	.01	2.7	.05	4.3	.01	2.4	.04	8.0	.1	7.2	.1	4.2	.05	6.6	.2	3.3	.08
Right Bank	2.0	0	4.6	0	2.7	0	3.0	0	4.8	0	2.7	0	8.8	0	7.9	0	4.8	0	7.3	0	3.7	0
	Run	Run	Run	Run	Run	Run	Run	Run	Pool	Run	Run	Run	Riffle	Run	Run	Run	Run	Run	Run	Run	Run	
Feature Type (riffle, run, or pool)																						

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: MC

Date: 9/10/07

WBID# 0658



Site# 1 Photo ID# Downstream T-1



Site# 1 Photo ID# Upstream T-1



Site# 1 Photo ID# Downstream T-11



Site# 1 Photo ID# Upstream T-11

WBID# 0658



Site# 2 Photo ID# Downstream T-1



Site# 2 Photo ID# Upstream T-1



Site# 2 Photo ID# Downstream T-11



Site# 2 Photo ID# Upstream T-11

WBID# 0658



Site# 2 Photo ID# Use



Site# 3 Photo ID# Upstream T-1



Site# 3 Photo ID# Downstream T-1



Site# 3 Photo ID# Upstream T-11

WBID# 0658



Site# 3 Photo ID# Downstream T-11



Site# 3 Photo ID# Use